APPENDIX K-2

IRP SITES

SCHOFIELD BARRACKS

In order to prioritize the investigation and remediation activities at Schofield Barracks, the installation restoration program was developed around four Operable Units (OUs). OU 1 consists of suspected sources of TCE contamination (Figure K-1); OU 2 analyzes the contaminated groundwater system underlying the sub-installation (Figure K-2); OU 3 consists of all other hazardous waste sites identified on the sub-installation (including POLs, as previously stated) (Figure K-3 and K-4); OU 4 consists of the former Schofield Barracks Sanitary Landfill (Figure K-5).

OU 1

The US army has monitored and surveyed eleven locations within OU 1 to determine the source of the TCE contamination. The eleven sites of contamination all have been identified with use or storage of TCE or other solvents at Army Properties through the 1990 study conducted by USATHAMA and include the following:

- Firing range burning areas;
- Area R waste storage area (POL area);
- East Range disposal site;
- Former laundry site;
- Maintenance area (Building T-1029);
- Distribution Warehouse (T-1052);
- Autocraft shop;
- Maintenance area;
- Aircraft fuselage area;
- Aircraft storage bunkers; and
- Engine rebuild area.

The investigation concluded that none of the OU 1 sites were sources of the TCE contamination and did not provide conclusive evidence of the actual source of the contamination. The army is performing long-term monitoring at the eleven OU 1 sites until 2028 (USARHAW 2002e, 18).

OU 2

The OU 2 analysis addressed the impact of Schofield Barracks operations on the groundwater. As previously stated, investigation of groundwater contamination of Schofield Barracks was initiated in 1985 when the levels of TCE above the Safe Drinking Water Act maximum contaminant level of 5 ppb was first detected. Air strippers were installed in September 1996 at the water supply wells on base to remove TCE. Based on the IRP investigations, the TCE plume lies to the east and south of the Schofield Barracks water supply wells.

Figure K-1
Location Map of Sites in Operable Unit 1

Figure K-2
Regional Monitoring Well Network – Operable Unit 2

Figure K-3
Site Locations – Main Post

Figure K-4
Site Locations – East Range

Figure K-5
Location Map of Operable Unit 4 – Former Landfill

Under the IRP program, OU 2 involved a well survey of 39 wells within a six-mile radius of the Schofield Barracks water supply wells. The sampling results indicated that TCE is found only in the Schofield supply wells and wells at Kunia on the west side of WAAF. A phase II RI field investigation work plan was submitted to regulatory agencies and was completed in May 1996. A proposed plan to continue treatment at the Schofield Barracks water plant, to monitor wells in the area for any migration of the TCE plume, and to install wellhead treatment at any municipal well that is affected was distributed to the public in May 1996. The resulting Record of Decision was signed by the Army, the Hawai'i Department of Health, and the EPA in September 1996, November 1996, and February 1997, respectively (USARHAW 2002e, 20).

OU 3

Possible sources of soil, surface water, or groundwater contamination not covered by OUs 1 or 4 have been grouped into OU 3, which included motor pools, repair shops, residential areas, golf courses, an automobile service station, and undeveloped parcels. The sites were chosen because of recent or current use and storage of hazardous materials, records of past industrial use, indications of dumping noted in historical aerial photographs, or a combination of the three (USARHAW 2000a, 4-7).

Initial investigations of the OU 3 sites found that several areas contained organic compounds and metals above background levels. Although constituents were identified above background levels, the risk assessment concluded that there was no significant current or potential threat to human health or the environment. As a result of the findings, the Army, Hawai'i DOH, and the EPA distributed a no action plan to the public, and the no action record of decision was signed by November 1996 (USARHAW 2002e, 23 and 24).

OU 4

OU 4 consists of the former Schofield Barracks sanitary landfill, which was operated from 1967 to 1981 and was sited in an area used as an open burn dump site from 1942 until 1967. The site was converted to a sanitary landfill in response to provisions of the CAA. The former landfill was used to dispose of a wide variety of solid wastes from various military installations, primarily consisting of domestic refuse from surrounding base housing; however, wastes were also disposed of from various industrial operations, such as vehicle and equipment maintenance and construction. TAMC reportedly contributed medical waste including pathogenic, infectious, and pharmaceutical waste. Other materials reportedly disposed in the former landfill were organic solvents, sewage sludge, asbestos, pesticide containers, unusable paints, as well as munitions, acids, and solvents. Although the former landfill was not a permitted hazardous waste disposal facility, no provisions were made to exclude hazardous waste. The landfill was closed in 1983 due to concern by the HDOH and City and County of Honolulu Board of Water Supply that the landfill operations would affect the quality of the Schofield Barracks water supply (EDR 2002a). The initial Phase I contamination surveys were performed starting in March 1993. The investigation was designed around EPA guidance and found that the landfill was a source of groundwater contamination, but not a source of TCE contamination (USARHAW 2000a, 7).

The OU 4 feasibility report, finalized in December 1995, recommended an initial maintenance effort consisting of regrading the landfill cap to its original design, installing gas monitoring wells around the landfill perimeter, installing a passive landfill gas venting system, performing cap revegetation, and performing long-term maintenance of the area. Remediation and construction of the new landfill cap was completed in January 1998. On July 21, 1998, the Army, in conjunction with EPA and DOH, conducted a final inspection and determined that the remedial action had been successfully executed (USARHAW 2000a, 7-9).

All four records of decision for the Schofield Barracks National Priorities List site were signed and approved by the Army and EPA Region IX in 1997. Final closeout reports and construction complete reports for all remedial activities were submitted to and approved by EPA in 1998. Schofield Barracks was removed from the National Priorities List in August 2000 (US Army 2002e, 7 and 8).

WHEELER ARMY AIRFIELD

IRP Sites

Initial Phase I environmental investigations at Wheeler Army Airfield were conducted in 1983 by the Air Force. Preliminary investigations identified eight sites for further evaluation. These sites consisted of a potential former landfill, two dump sites, a fire fighting training area, an abandoned oxidation pond, two aircraft parking/wash areas, and the sanitary sewer system (Figure K-6). A federal Phase 2 Facilities Review of the installation was conducted for the EPA in 1991. Phase two investigations resulted in no further response action planned (NFRAP) decision documents covering four of the eight original sites of concern: The two aircraft parking areas, the sanitary system, and the abandoned oxidation ponds (USARHAW 2002c, 7).

The other four sites were subject to a remedial investigation (RI). The preliminary findings for the RI recommended NFRAP decisions for the former landfill sitel and the fire fighting training area. The Landfill site was closed in 1997 (although the site closure was based on not finding anything to corroborate the existence of the landfill at the site). In November 1997, the HDOH and the US Air Force both signed the final NFRAP documents for the landfill and fire fighting training area sites (USARHAW 2002c, 7).

The final two sites of concern (Kunia Gate Dump and Gulch Runway Dump) were recommended for remedial action. A non-time critical removal action was performed in 1996 at the Kunia Gate Dump and included debris removal, surface grading, and placement of a cap. The Kunia Dump was subsequently closed, and both HDOH and the US Air Force signed a NFRAP document for the site (USARHAW 2002c, 7).

A non-time critical removal action was also conducted at the Gulch Runway Dump in 1996. Excavation and remediation were performed, per cleanup guidelines established by the State of Hawai‘i. A draft NFRAP of the site was released on January 5, 2001. The final NFRAP is pending HDOH review (USARHAW 2002c, 7).

Figure K-6
1991 Wheeler Army Airfield Installation Action Plan Installation Restoration Program Sites

Areas of Concern

The initial 1983 records survey performed by the Air Force was not performed in accordance with current regulatory requirements. In response to this, a preliminary assessment/site investigation was initiated in September 1994. Four IRP sites (Figure K-7) and seven areas of concern were investigated during the preliminary assessment. The four IRP sites (originally investigated in the 1983 assessment) were again recommended for NFRAP decisions, and final NFRAP documents were signed by the HDOH and US Air Force in May 2000 (USARHAW 2002c, 7 and 8).

The seven areas of concern identified in the preliminary assessment included a former aircraft revetment area, a vehicle wash rack, a hydraulic lift sump, a UST, an AST, a former POL transfer station drum storage area, and a drum disposal area (Figure K-8). All seven areas of concern contained contaminant concentration levels below action levels (USARHAW 2002c, 8).

UST and AST Sites/Additional Potential IRP Sites

In addition to the aforementioned sites of investigation, the US Army has identified numerous potential sites, including former UST/AST sites and associated pipelines (Figure K-9) and additional potential IRP sites as sources of contamination. The final potential IRP sites include a former firing range, an AST, and an earthen sump at a former gas station (Figure K-10) (USARHAW 2002c, 8).

Appendix K-3 provides a summary of site descriptions, current status of investigation, and future responses for all the aforementioned Wheeler Army Air Force IAP sites.

PTA

PTA was inspected in 1997 as a potential hazardous waste site and was entered into the CERCLA System in July 1992, under the USEPA Identification number HI3214522234. PRC evaluated two landfills, a former pesticide storage area, and a former fire training area as potential hazardous waste sources (Figure K-11).

The results of the analysis were compared with USEPA Region IX PRGs. The laboratory results for VOCs, SVOCs, PCBs, pesticides, and metals were compared to the PRGs for residential soil, with the residential soil PRG being the more conservative measure. The concentrations were found to be less than USEPA PRGs. Metal concentrations at the four source areas, with the exception of arsenic, were all below the PRGs. Arsenic levels exceeded the PRGs but were below the maximum background concentration, indicating that relatively high arsenic concentrations occur naturally and are not elevated due to past facility operations. Contaminant concentrations that exceed PRGs do not necessarily indicate an unacceptable health risk, although exceedences may warrant further evaluation through risk assessment.

The site investigation analytical results also indicated that the subsurface soils were contaminated with low concentrations of petroleum-based substances. Although the

Figure K-7
1991 Wheeler Army Airfield Installation Action Plan Potential Installation Restoration Program Sites

Figure K-8
1991 Wheeler Army Airfield Installation Action Plan Area of Concern Sites

Figure K-9
1991 WAAF Installation Action Plan Former UST Installation Restoration Program Sites

Figure K-10
1991 WAAF Installation Action Plan Other Potential IRP Sites

Figure K-11
Potential Contaminant Sources at PTA

impact of site contamination on groundwater was not investigated, contaminant migration from source areas to the basal aquifer was unlikely, based on the estimated depth to groundwater at the site, the relatively small area of contaminated soil, and the low levels of detected contaminants. The analysis found that at the time of the analysis, if left undisturbed, the four source areas did not warrant further investigation or remediation. The site investigation data for soils in these areas indicate the presence of some contaminants of concern, but at concentrations that if left in place would pose minimal, if any, threat to receptors (PRC 1997, 102-103).

There are no IRP sites located at KTA or DMR.